FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

May 5 to May 11, 2013 (Week 19)

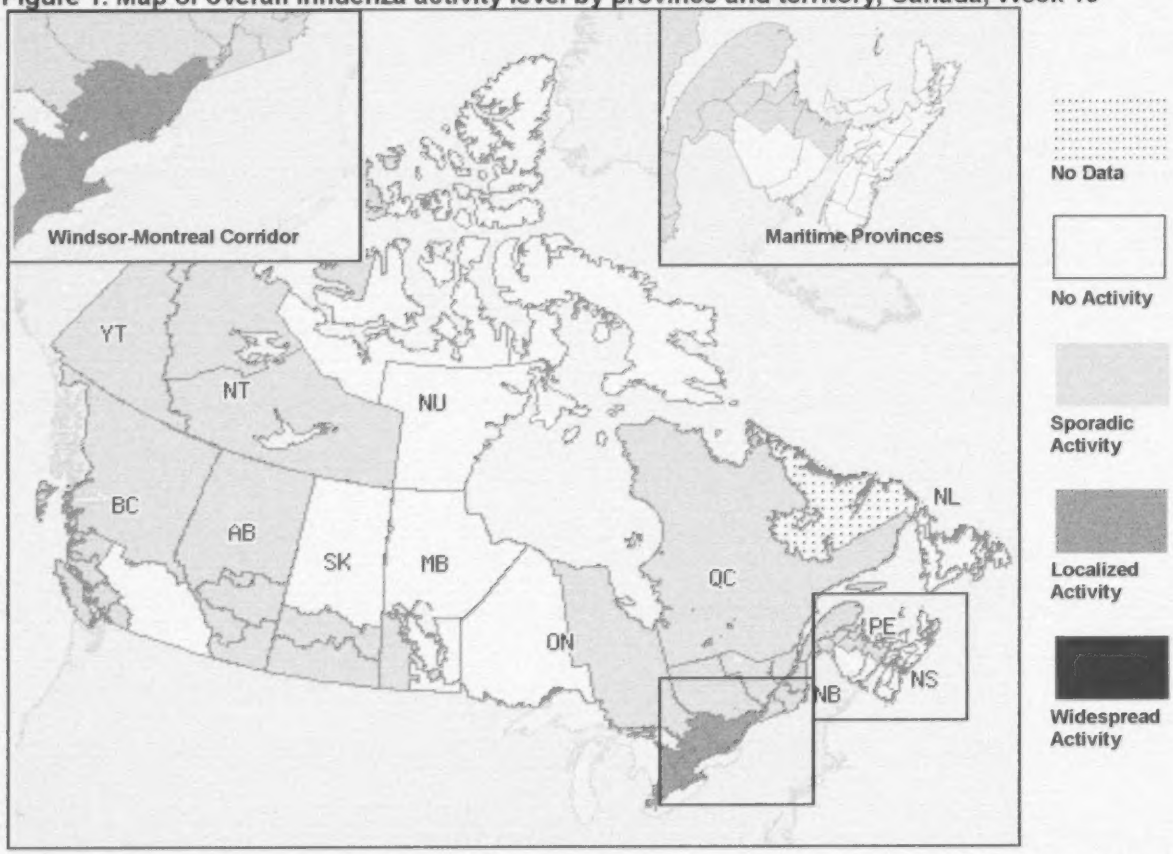
Overall Summary

- Influenza activity in Canada continued its slow decline in week 19, with the percentage of laboratory tests positive for influenza at 8.6%. Influenza B was the predominant strain, but detections continued to decrease.
- Detections of rhinovirus and parainfluenza continued to increase slowly, while detections of most other respiratory viruses decreased in week 19.
- The ILI consultation rate decreased slightly, but was above the expected range. Fewer regions reported localized activity compared to the previous week.

Influenza Activity (geographic spread) and Outbreaks

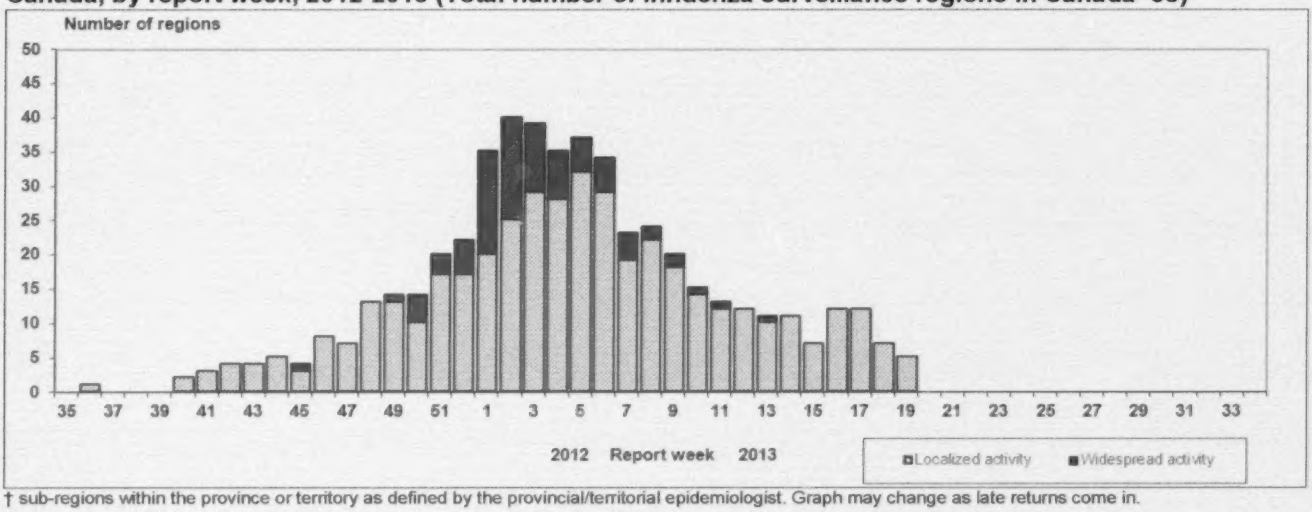
In week 19, five regions in Ontario reported localized activity and 28 regions reported sporadic activity. The number of regions reporting widespread or localized activity decreased compared to the previous week (Figures 1 and 2). Three new influenza outbreaks were reported: one in a long-term-care facility and two in other facilities or communities (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 19



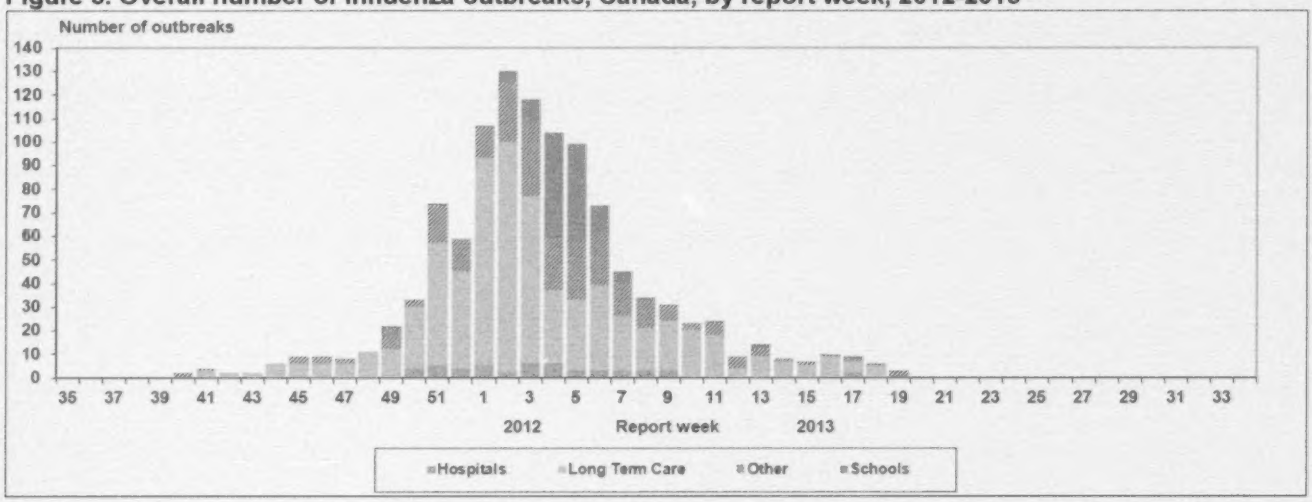
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The overall percentage of positive influenza tests decreased slightly compared to recent weeks, from 9.8% in week 18 to 8.6% in week 19. Detections of influenza B decreased for the third consecutive week, and represented 86.5% of total positive influenza detections in week 19 (Figure 4). Among the influenza viruses detected in week 19 (n=229), 13.5% were positive for influenza A viruses [of which 41.9% were A(H1N1)pdm09, 19.4% were A(H3), and 38.7% were A(unsubtyped)] (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 85.9% influenza A [34.4% A(H3), 4.6% A(H1N1)pdm09 and 60.9% A(unsubtyped)] and 14.1% influenza B (Table 1).

Detailed information on age and type/subtype has been received for 26,985 cases to date this season (Table 2). The proportion of cases by age group is as follows: 14.9% <5 years; 10.5% between 5-19 years; 16.4% between 20-44 years; 17.5% between 45-64 years of age; 40.7% ≥65 years.

The percentage of positive tests for rhinovirus decreased slightly from 16.5% in week 18 to 15.8% in week 19, but has been slowly increasing since week 01. The percentage of positive tests for parainfluenza (7.4%) increased, continuing its gradual increase over the past 11 weeks. The percentage of tests positive for respiratory syncytial virus (RSV) (3.1%) continued its decline from a peak in week 08. The percentage of positive tests for human metapneumovirus (hMPV) (4.2%) has been decreasing slowly since week 14. The percentage of positive tests for coronavirus (2.3%) increased in week 19 after a slow decline from week 04 to 18 (Figure 5)*.

* For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	Weekly (May 5 to May 11, 2013)						Cumulative (August 26, 2012 to May 11, 2013)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	4	0	1	1	2	11	1910	0	1450	219	241	405
AB	7	0	2	4	1	36	2354	0	1769	441	144	786
SK	0	0	0	0	0	13	836	0	476	73	287	298
MB	1	0	1	0	0	16	658	0	79	10	569	100
ON	9	0	2	5	2	34	8257	0	3780	374	4103	881
QC	5	0	0	1	4	77	9802	0	546	36	9220	1846
NB	4	0	0	2	2	11	1863	0	771	73	1019	71
NS	0	0	0	0	0	0	388	0	165	8	215	7
PE	0	0	0	0	0	0	116	0	76	9	31	1
NL	1	0	0	0	1	0	718	0	152	0	566	16
Canada	**31**	**0**	**6**	**13**	**12**	**198**	**26902**	**0**	**9264**	**1243**	**16395**	**4411**

*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (May 5 to May 11, 2013)					Cumulative (Aug. 26, 2012 to May 11, 2013)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	2	0	1	1	24	3127	333	1166	1628	901
5-19	1	1	0	0	21	1687	95	825	767	1142
20-44	4	1	0	3	19	3661	478	1539	1644	764
45-64	2	1	1	0	23	3956	443	1563	1950	754
65+	4	0	0	4	26	10140	163	4165	5812	853
Unknown	0	0	0	0	0	164	20	143	1	1
Total	**13**	**3**	**2**	**8**	**113**	**22735**	**1532**	**9401**	**11802**	**4415**

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

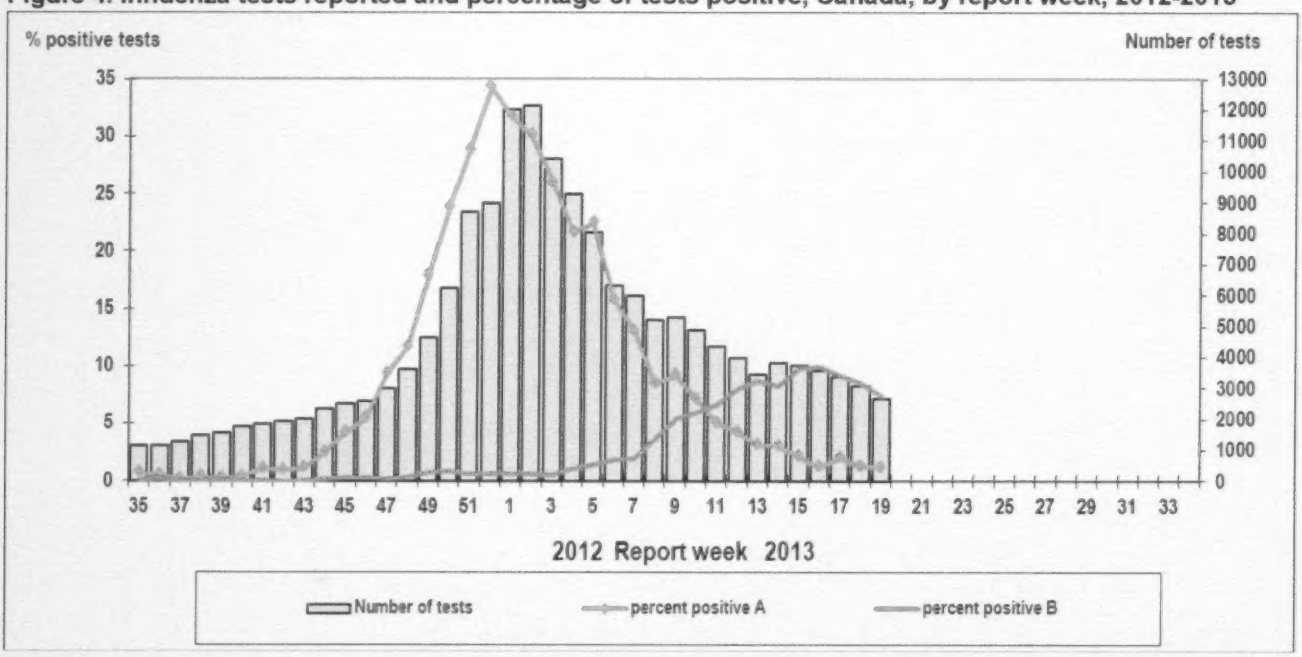
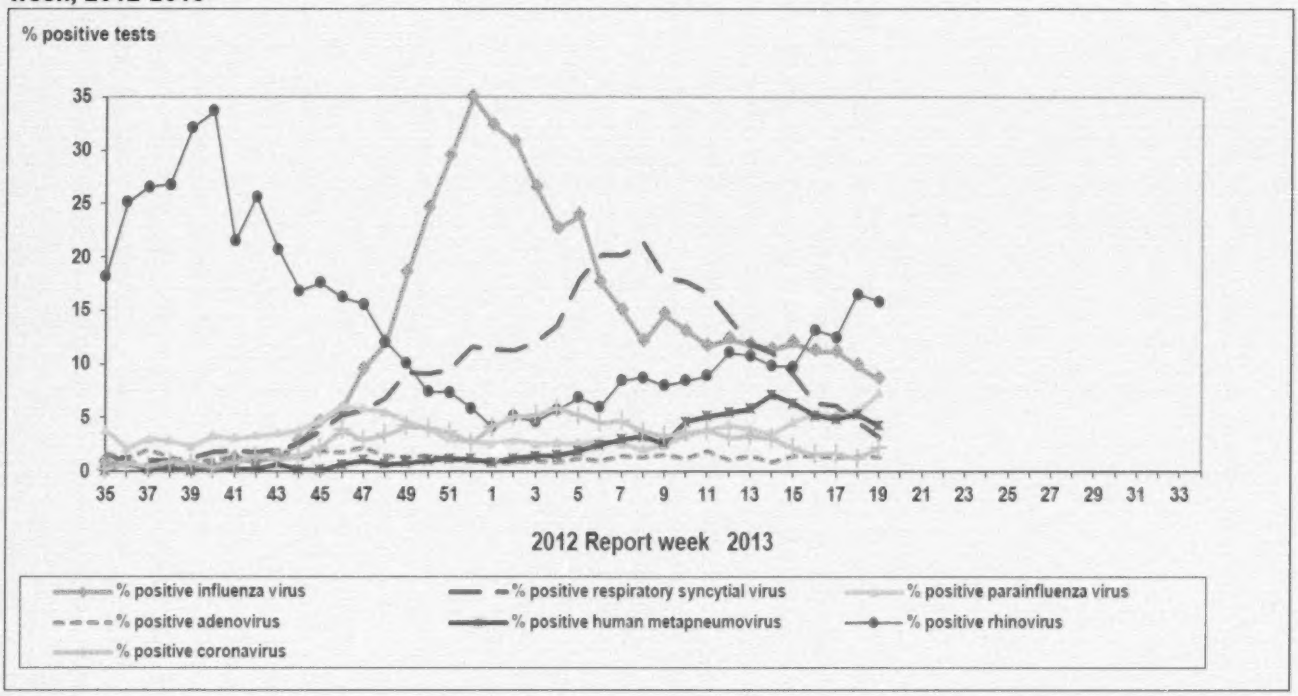


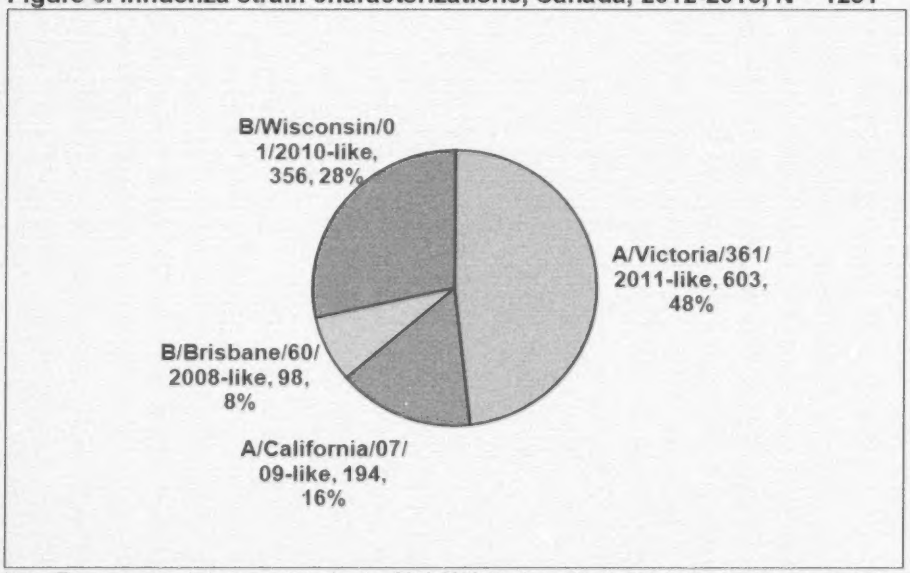
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 1251 influenza viruses. The 603 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 194 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 356 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 98 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 1251



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

During the 2012-13 season, NML has tested 1223 influenza viruses for resistance to oseltamivir, and 1221 influenza viruses for resistance to zanamivir. Among these, one A(H3N2) virus was resistant to oseltamivir and zanamivir. A total of 1210 influenza A viruses were tested for amantadine resistance and all but one were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

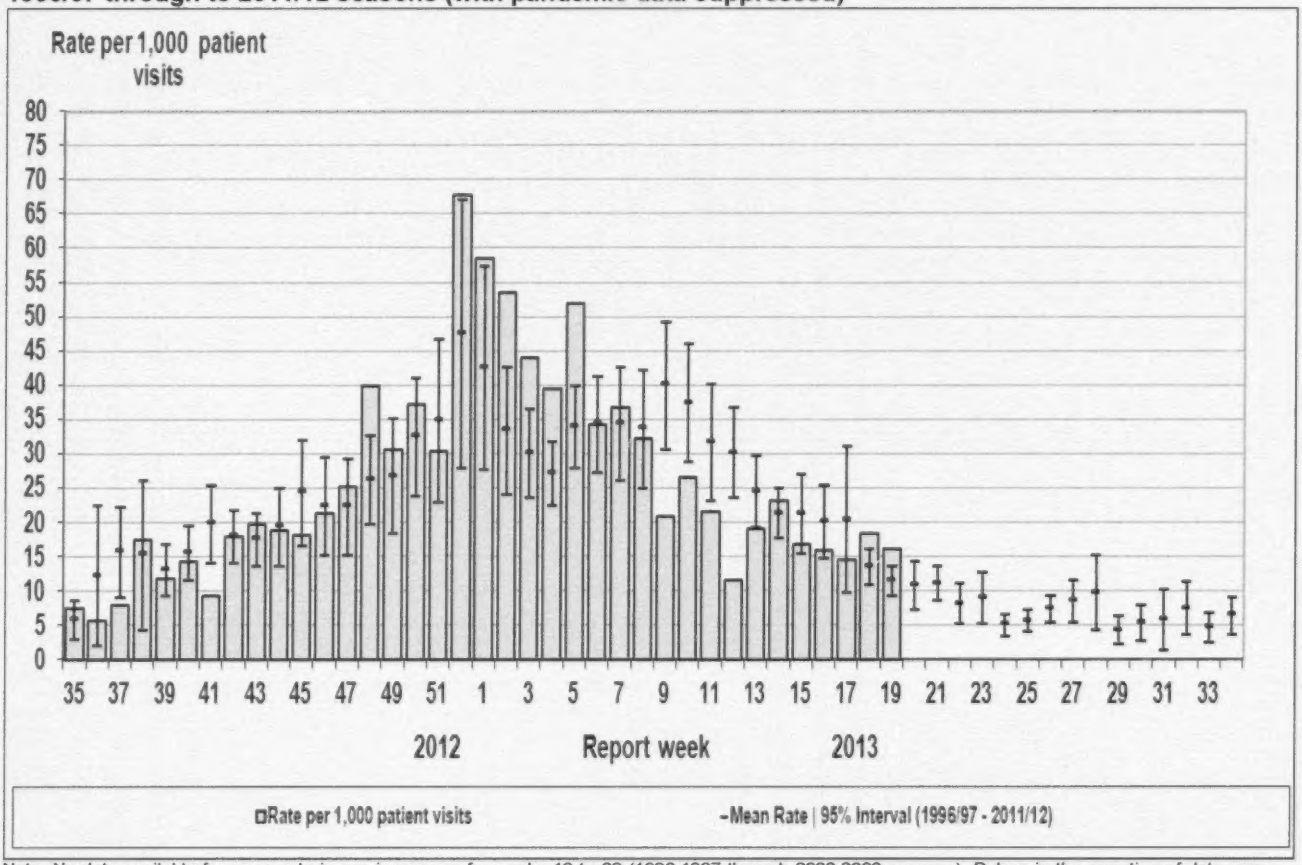
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	595	1 (0.2%)	596	1 (0.2%)	980	979 (99.9%)
A (H1N1)	199	0	196	0	230	230 (100%)
B	429	0	429	0	NA*	NA*
TOTAL	1223	1 (0.1%)	1221	1 (0.1%)	1210	1209 (99.9%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate decreased from 18.3 ILI consultations per 1,000 patient visits in week 18 to 16.1 / 1,000 in week 19, and is above the expected range (Figure 7). In week 19, the highest consultation rate was observed in children 5-19 years of age (33.1/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 19, 11 laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, compared to 16 in week 18. All of the cases reported in week 19 were identified with influenza B. The age distribution is as follows: two cases 0-5 months of age, two 6-23 months of age, four 2-4 years of age, and three 5-9 years of age. Four cases were admitted to an intensive care unit (ICU) during week 19, one child 0-5 months of age, one 6-23 months of age, one 2-4 years of age and one 5-9 years of age; all with influenza B. No deaths were reported in week 19.

Since the start of the 2012-13 season, a total of 863 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 621 (72.0%) with influenza A [of which 120 (19.3%) were A(H3N2), 25 (4.0%) were A(H1N1)pdm09 and the remaining 476 were A(unsubtyped); and 242 (28.0%) with influenza B. The distribution of cases by age group is as follows: 159 (18.4%) <6 months of age; 200 (23.2%) age 6-23 months; 247 (28.6%) age 2-4 years; 186 (21.6%) age 5-9 years; and 71 (8.2%) age 10-16 years. Of the 863 cases, 94 (10.9%) were admitted to the ICU. Of the 72 ICU admissions with available data, 62 (86.1%) cases had at least one underlying condition. One death has been reported to date this season in a child 6-23 months of age with an underlying condition, with influenza B.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths (PCIRN)

Active surveillance of laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network has concluded for the 2012-13 influenza season. However, the PCIRN-SOS network will continue to report limited data on laboratory-confirmed cases of influenza. In week 19, 13 hospitalizations were reported from 14 of the 17 PCIRN sites: 12 were cases of influenza B and one case of influenza A. Nine cases were ≥65 years of age, one was 45-64 years, and one was <20 years of age. One ICU admission and no deaths were reported in week 19.

Cumulative data for the season to date includes data from active surveillance from November 4, 2012 to April 30, 2013 and data from passive surveillance since May 1, 2013. The cumulative number of cases reported by the PCIRN-SOS network was 1,792 influenza-associated adult hospitalizations: 90.5% with influenza A [of which 310 were A(H3N2), 19 were A(H1N1)pdm09, and 1292 were A(unsubtyped)]; 125 with influenza B, and the type has not been reported for 46 cases. The age distribution of hospitalizations is as follows: 1221 (68.1%) were ≥65 years of age, 365 (20.4%) were 45-64 years, 194 (10.8%) were 20-44 years, and 10 (0.6%) were <20 years of age. ICU admission was required for 215 hospitalizations; the majority of which were adults ≥65 years of age (125; 58.1%). 115 deaths have been reported: 26 with influenza A(H3N2), one with A(H1N1)pdm09, 82 with A(unsubtyped), 5 with influenza B, and one untyped. More than 85% of the deaths (98/115) were in adults ≥65 years of age, 12.2 (14%) were adults 45-64 years of age, and 3 (2.6%) were 20-44 years of age.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

In week 19, 44 laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories*. For the first time during the 2012-13 season, the majority of cases were influenza B (77.3%). The highest proportion of hospitalisations were in adults ≥65 years of age (40.9%), followed by children 0-4 years of age (22.7%). Of the 21 cases with available data, three cases were admitted to the ICU, all with influenza A(unsubtyped); two were ≥65 years of age and one was 45-64 years of age. One death was reported in week 19, an adult ≥65 years of age with influenza B.

To date this season, 4,763 influenza-associated hospitalizations have been reported, of which 88.7% have been influenza A. Of those subtyped (48.9%), influenza A(H3) was the predominant influenza strain. The cumulative proportion of hospitalizations with influenza B continues to increase (11.3% in week 19). Age information was available for 4,760 cases, and the age distribution is as follows: 2,529 (53.1%) were ≥65 years of age; 794 (16.7%) were 45-64 years of age; 429 (9.0%) were 20-44 years of age; 40 (0.8%) were 15-19 years of age; 230 (4.8%) were 5-14 years; and 738 (15.5%) were 0-4 years of age. Of the 1,300 cases with available data, there have been 213 hospitalisations for which admission to an ICU was required; the highest proportions have been in adults 45-64 years of age, followed by adults ≥65 years of age (35.4% and 34.4%, respectively). To date, 298 deaths have been reported: 246 adults ≥65 years of age, 35 adults 45-64 years; 11 adults 20-44 years, one child 5-14 years of age, and 5 children 0-4 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note*: The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

International Influenza Updates

WHO: The most recent WHO surveillance report was published on 10 May 2013. In most temperate regions of the northern hemisphere, influenza activity is at inter-seasonal levels, although persistent transmission is reported in a few countries due to increasing detections of influenza B. Earlier in the season, A(H3N2) was predominant in North America, A(H1N1)pdm09 in Europe and both, in varying proportions, in countries in northern Asia. Overall, circulating influenza viruses have been characterized as those included in the trivalent vaccine. However, 10-30% of influenza B viruses have been from the Victoria lineage. Analysis from 13 European countries in the last week of April revealed a persistent excess of all-cause mortality among adults ≥65 years of age. Cumulative excess mortality among the elderly was higher than observed in the previous three years. Mortality data for younger age groups was similar to previous seasons. In northern Africa and the Middle East, influenza activity has declined since late February to very low numbers of positive specimens. The timing and pattern of circulating virus types was similar to that seen in Europe, with A(H1N1)pdm09 predominant in most countries, with the exception of Egypt which reported primarily A(H3N2). Influenza activity continued to decrease in temperate regions of Asia since peaking at the end of January, although activity persists in China and the Republic of Korea. Influenza A(H3N2) has been the most commonly detected virus in northern Asia this season although in northern China A(H1N1)pdm09 was predominant in the second half of the season. In tropical regions of Asia, influenza activity increased slightly, with co-circulation of all three types/subtypes. Transmission in India appears to have peaked in late March, primarily associated with A(H1N1)pdm09. Sri Lanka reported the highest levels this season, with circulation of both A(H1N1)pdm09 and influenza B. In southern China, activity peaked in mid-March, due primarily to A(H1N1)pdm09. In Central America and the Caribbean, influenza activity remained low and most cases of ILI were associated with other respiratory viruses. In Tropical South America, there was an increasing trend in acute respiratory infections, but within the expected range. Brazil reported A(H1N1)pdm09 as the most common virus type while Ecuador reported more A(H3N2). A few countries in tropical areas of Central Africa reported increases in detections of A(H1N1)pdm09 and influenza B, although all three virus types have been circulating at low levels in recent weeks. Influenza activity in temperate countries of the southern hemisphere remains at inter-seasonal levels.
World Health Organization influenza update

United States: During week 18, influenza activity remained low. Five states reported regional influenza activity, and three states reported local activity. The national percentage of outpatient visits for ILI was 0.9%, which is below the national baseline. All 10 regions reported ILI below region-specific baseline levels in week 18. The percentage of deaths due to pneumonia and influenza is below the epidemic threshold at 7.0% in week 18. The proportion of tests positive for influenza viruses declined to 4.1% in week 18. Of the 125 positive influenza detections, 67.2% were influenza B. Since October 1, 2012, the CDC has antigenically characterized 2,354 influenza viruses. Among influenza A(H3N2) viruses, 1,300 (99.6%) were A/Victoria/361/2011-like, and 5 (0.4%) showed reduced titers to A/Victoria/361/2011 antiserum. Among influenza A(H1N1)pdm09 viruses, 231 (98.7%) were A/California/7/2009-like, and 3 (1.3%) showed reduced titers to A/California/7/2009-like antiserum. Among influenza B viruses, 546 (67.0%) were B/Wisconsin/01/2010-like belonging to the Yamagata lineage of viruses; and 269 (33.0%) to the B/Victoria lineage. Two (0.4%) A(H1N1)pdm09 and two (0.1%) A(H3N2) oseltamivir-resistant viruses have been reported to date this season. Among the 12,330 influenza-associated hospitalizations reported to date this season, 79.2% were associated with influenza A of which 96.1% were A(H3N2), and approximately 50% were among adults ≥65 years. A total of 138 influenza-associated paediatric deaths have been reported to date this season, 63 with influenza A, 73 with influenza B and one with both influenza A and B.
Centers for Disease Control and Prevention seasonal influenza report

Europe: No new influenza surveillance update was available from EuroFlu since the report for week 18.
EuroFlu weekly electronic bulletin

Emerging Respiratory Pathogens

Human Avian Influenza
Influenza A(H7N9): No new human cases of infection with avian influenza A(H7N9) have been reported since 8 May 2013 by WHO.
PHAC – Avian influenza A(H7N9)
PHAC – A(H7N9) risk assessment
WHO – Influenza at the human-animal interface
WHO – Disease Outbreak News
WHO – Frequently Asked Questions on human infection with influenza A(H7N9)

Human Swine Influenza
No new human cases of infection with swine influenza viruses or variants were reported in week 18.
Centers for Disease Control and Prevention seasonal influenza report

Novel Coronavirus (HCoV-EMC/2012)

Seven new cases of novel coronavirus (HCoV-EMC/2012) have been reported by WHO since 9 May 2013. One is a contact of the travel-related index case in France, and six are part of the healthcare-related outbreak in Saudi Arabia. Two of the six individuals in the cluster are healthcare workers, making it the first time healthcare workers have been confirmed with nCoV from exposure to patients. Since the beginning of May 2013, a total of 21 cases, with 9 deaths, have been identified as part of the healthcare cluster in Saudi Arabia. Since April 2012, 40 cases of laboratory-confirmed cases of HCoV-EMC/2012 have been identified, including 20 deaths. Most patients are male (79.5%; 31 of 39 cases with sex reported) and range in age from 24 to 94 years (median 56 years). The first cases had onset of illness in late March or early April 2012; the most recent case has a reported symptom onset date of 8 May 2013.

PHAC – Novel coronavirus (HCoV-EMC/2012)
PHAC – HCoV-EMC/2012 risk assessment
WHO – Coronavirus infections

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.